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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,707	06/03/2005	Frank Kuchita	100086-048US	5148
23526	7590	07/18/2006	EXAMINER	
NORRIS MC LAUGHLIN & MARCUS, P.A. P O BOX 1018 SOMERVILLE, NJ 08876			MAYO III, WILLIAM H	
			ART UNIT	PAPER NUMBER
			2831	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/537,707	KUCHITA ET AL.	
	Examiner	Art Unit	
	William H. Mayo III	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-48 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892) -
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date June 3, 2005.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 120. The National Application Number PCT/US02/39416, being filed on December 11, 2002.

Information Disclosure Statement

2. The information disclosure statement filed June 3, 2005 has been submitted for consideration by the Office. It has been placed in the application file and the information referred to therein has been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8-13, 15-20, 22, 24-32, 34-38, 40-41, 43, 45-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Belli et al (Pat Num WO99/33070, herein referred to as Belli). Belli discloses an electrical cable (Fig 1), which prevents air and moisture ingress into the insulation structure (abstract). Specifically, with respect to claim 1, Belli discloses an electrical cable (Fig 1) comprising a conductor (1), a

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semiconductive conductor (2) overlaying the conductor (1, Page 7, lines 34-35), a crosslinked insulation layer (3) formed over the conductor shield (2, Page 7 & 11, lines 35 & 15-21, respectively), a foamed crosslinked semiconductive insulation shield (4 & 5, Pages 15-1634-35 & 1-9) positioned over and adhered (i.e. heat bonded by extruder) to the insulation layer (3). With respect to claim 2, Belli discloses that an interface between the insulation layer (3) and the foamed insulation shield (4 & 5) is substantially void free (Fig 1). With respect to claim 3, Belli discloses that the foamed insulation shield (4 & 5) has a closed cell structure (Fig 1). With respect to claim 4, Belli discloses that a metallic shield (6) overlays the foamed insulation (4 & 5). With respect to claim 5, Belli discloses that the foamed insulation shield (4 & 5) may be foamed by a chemical foaming agent (i.e. Hydrocerol CF 70, Pages 12 & 16, lines 5-8 & 27-31) having a decomposition temperature to the insulation shield prior to extrusion (160°C, Page 14, lines 26-28) and decomposing the chemical foaming agent at greater than atmospheric pressure after extruding the insulation shield (4 & 5, i.e. 200 °C during extrusion, Page 16, lines 10-13). With respect to claim 6, Belli discloses that the chemical foaming agent is Hydrocerol CF 70, which is an endothermic foaming agents (Page 16, lines 27-31). With respect to claim 8, Belli discloses that a catalyst may be added to the insulation shield (4 & 5) prior to extrusion onto the insulation layer (3, Page 13, lines 22-26). With respect to claim 9, Belli discloses that the insulation shield (4 & 5) may be a base material comprised of cross linkable ethylene acetate selected from the group of EVA & EEA (Page 8, lines 26 & 28). With respect to claim 10, Belli discloses that the chemical foaming agent comprising a masterbatch (i.e. Hydrocerol CF 70 & EVA or

EBA, Page 14, lines 11-19). With respect to claim 11, Belli discloses that the masterbatch comprising a carrier selected from the group consisting of EVA and EEA (Page 8, lines 26 & 28) and an active chemical foaming ingredient (Page 16, lines 27-31). With respect to claim 12, Belli discloses that the carrier is made of a material (EVA or EEA), which inherently has a MFI higher than that of the insulation shield (Page 8, lines 26 & 28). With respect to claim 13, Belli discloses that the chemical foaming comprising about 1-8% weight of insulation shield (i.e. 2%, Page 16, lines 27-31). With respect to claim 15, Belli discloses a method of producing an electrical power cable (Fig 1) comprising advancing an electrical conductor (1) through an extrusion crosshead (Page 11, lines 22-30), extruding a semiconductive conductor shield (2) over the electrical conductor (1, Page 11, lines 22-30), extruding a cross linkable electrical insulation (3) over the conductor shield (2, Page 11, lines 15-30), extruding an semiconductive crosslinkable insulation shield (4 & 5) over the insulation layer 3, Page 12, lines 5-10), heating the insulation shield (4 & 5), the insulation layer (3), and the conductor shield (2), to a temperature (i.e. 200°C) equal to or greater than a decomposition temperature to the chemical foaming agent (i.e. Hydrocerol CF 70) to decompose the chemical foaming agent, Page 16, lines 10-13), crosslinking the insulation shield (4 & 5, Col 13, lines 22-26), insulation layer (3, Page 11, line 15-21), and the conductor shield (2, Pages 11, lines 15-21), and foaming the insulation shield (4 & 5, Page 16, lines 27-31). With respect to claim 16, Belli discloses a method wherein the chemical foaming agent is made of Hydrocerol CF 70, which inherently has a decomposition temperature and processing temperature (Page 16, lines 27-31). With

respect to claim 17, Belli discloses that the extruding step is done at a temperature less than the decomposition temperature of the chemical foaming agent (i.e. 160°C, i.e. initial extrusion temperature is around 140°C, Page 13, lines 4-7). With respect to claim 18, Belli discloses that the extruding step being done at a temperature greater than atmospheric pressure (i.e. 200oC, Page 13, lines 5-7). With respect to claim 19, Belli discloses a method further comprising cooling the electrical cable (Fig 1) after the foaming step (Page 18, lines9-10). With respect to claim 20, Belli discloses a method further comprising applying a metallic shield (6) over the foamed insulation shield (4 & 5) after the cooling step (Page 18, lines 11-14). With respect to claim 22, Belli discloses method wherein the chemical foaming agent is an endothermic foaming agents (Page 16, lines 27-31, i.e. Hydrocerol CF 70), and may comprise a catalyst may be added to the insulation shield (4 & 5) to lower the decomposition temperature of the chemical foaming agent (3, Page 13, lines 22-26). With respect to claim 24, Belli discloses that the heating step (i.e. extrusion temperature) is done at about a temperature of greater than 370°F (i.e. 200oc, Page 16, lines 10-13). With respect to claim 25, Belli discloses that the three extruding steps are done simultaneously (Page 11, lines 22-30). With respect to claim 26, Belli discloses that the three crosslinking steps and the foaming step are done substantially concurrently (Page 12, lines 6-20). With respect to claim 27, Belli discloses a method wherein the insulation sheath (4 & 5) are maintained within the processing temperature range of the foaming agent in the heating step (i.e. extrusion step) for at least a minute (i.e. mixing time consist of 10min, Page 17, lines 15-17). With respect to claim 28, Belli discloses an electrical cable (Fig 1) comprising a conductor

(1), a semiconductive conductor (2) overlaying the conductor (1, Page 7, lines 34-35), a crosslinked insulation layer (3) formed over the conductor shield (2, Page 7 & 11, lines 35 & 15-21, respectively), a foamed crosslinked semiconductive insulation shield (4 & 5, Pages 15-1634-35 & 1-9) positioned over and adhered (i.e. heat bonded by extruder) to the insulation layer (3), wherein the foamed insulation shield (4 & 5) is substantially free of voids (Fig 1). With respect to claim 29, Belli discloses that the foamed insulation shield (4 & 5) has a closed cell structure (Fig 1). With respect to claim 30, Belli discloses that a metallic shield (6) overlays the foamed insulation (4 & 5). With respect to claim 31, Belli discloses that the foamed insulation shield (4 & 5) may be foamed by a chemical foaming agent (i.e. Hydrocerol CF 70, Pages 12 & 16, lines 5-8 & 27-31) having a decomposition temperature to the insulation shield prior to extrusion (160°C, Page 14, lines 26-28) and decomposing the chemical foaming agent at greater than atmospheric pressure after extruding the insulation shield (4 & 5, i.e. 200 °C during extrusion, Page 16, lines 10-13). With respect to claim 32, Belli discloses that the chemical foaming agent is Hydrocerol CF 70, which is an endothermic foaming agents (Page 16, lines 27-31). With respect to claim 34, Belli discloses that a catalyst may be added to the insulation shield (4 & 5) prior to extrusion onto the insulation layer (3, Page 13, lines 22-26). With respect to claim 35, Belli discloses that the insulation shield (4 & 5) may be a base material comprised of cross linkable ethylene acetate selected from the group of EVA & EEA (Page 8, lines 26 & 28). With respect to claim 36, Belli discloses that the masterbatch comprising a carrier selected from the group consisting of EVA and EEA (Page 8, lines 26 & 28) and an active chemical foaming ingredient

(Page 16, lines 27-31). With respect to claim 37, Belli discloses that the carrier is made of a material (EVA or EEA), which inherently has a MFI higher than that of the insulation shield (Page 8, lines 26 & 28). With respect to claim 38, Belli discloses that the chemical foaming comprising about 1-8% weight of insulation shield (i.e. 2%, Page 16, lines 27-31). With respect to claim 40, Belli discloses a method of producing an electrical power cable (Fig 1) comprising advancing an electrical conductor (1) through an extrusion crosshead (Page 11, lines 22-30), extruding a semiconductive conductor shield (2) over the electrical conductor (1, Page 11, lines 22-30), extruding a cross linkable electrical insulation (3) over the conductor shield (2, Page 11, lines 15-30), extruding an semiconductive crosslinkable insulation shield (4 & 5) over the insulation layer 3, Page 12, lines 5-10), wherein the extruding step is done at a temperature less than the decomposition temperature of the chemical foaming agent (i.e. 160°C, i.e. initial extrusion temperature is around 140°C, Page 13, lines 4-7), heating the insulation shield (4 & 5), the insulation layer (3), and the conductor shield (2), to a temperature (i.e. 200°C) equal to or greater than a decomposition temperature to the chemical foaming agent (i.e. Hydrocerol CF 70) to decompose the chemical foaming agent, Page 16, lines 10-13), wherein the heating step (i.e. extruding) being done at a temperature greater than atmospheric pressure (i.e. 200°C, Page 13, lines 5-7), crosslinking the insulation shield (4 & 5, Col 13, lines 22-26), insulation layer (3, Page 11, line 15-21), and the conductor shield (2, Pages 11, lines 15-21), and foaming the insulation shield (4 & 5, Page 16, lines 27-31). With respect to claim 41, Belli discloses a method further comprising applying a metallic shield (6) over the foamed insulation shield (4 & 5) after

the cooling step (Page 18, lines 11-14). With respect to claim 43, Belli discloses method wherein the chemical foaming agent is an endothermic foaming agents (Page 16, lines 27-31, i.e. Hydrocerol CF 70), and may comprise a catalyst may be added to the insulation shield (4 & 5) to lower the decomposition temperature of the chemical foaming agent (3, Page 13, lines 22-26). With respect to claim 45, Belli discloses that the heating step (i.e. extrusion temperature) is done at about a temperature of greater than 370°F (i.e. 200oc, Page 16, lines 10-13). With respect to claim 46, Belli discloses that the three extruding steps are done simultaneously (Page 11, lines 22-30). With respect to claim 47, Belli discloses that the three crosslinking steps and the foaming step are done substantially concurrently (Page 12, lines 6-20). With respect to claim 48, Belli discloses a method wherein the insulation sheath (4 & 5) are maintained within the processing temperature range of the foaming agent in the heating step (i.e. extrusion step) for at least a minute (i.e. mixing time consist of 10min, Page 17, lines 15-17).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 7, 14, 21, 23, 33, 39, 42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belli (Pat Num WO99/33070). Belli discloses an electrical cable (Fig 1), which prevents air and moisture ingress into the insulation structure (abstract), as referred to with respect to claims 1, 15-16, 28, 31, & 40 above.

Specifically, with respect to claims 7, 21, 33, & 42, Belli discloses that the insulation shield (4 & 5) comprise a chemical foaming agent (i.e. Hydrocerol CF 70) that is extruded at some pressure (i.e. the extruder of Belli has to have some type of pressure in order to extrude the material). With respect to claims 14 & 39, Belli discloses that the foaming of the insulation shield (4 & 5) has a density reduction of the insulation shield (4 & 5, Page 13, lines 27-33). With respect to claims 23 & 44, Belli

discloses that the heating step (i.e. extrusion temperature) is done at about a temperature of greater than 370°F (i.e. 200°C, Page 16, lines 10-13).

However, Belli doesn't specifically disclose the chemical foaming agent being extruded at a pressure equal to about 135 psi (claims 7, 21, 33, & 42), nor the foaming of the insulation shield causing 10-40% density reduction of the insulation shield (claims 14 & 39), nor the method wherein the heating step is done at about 600-750°F (claims 23 & 44).

With respect to claims 7, 14, 21, 23, 33, 39, 42, and 44, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the electrical cable of Belli to be made by the method wherein the chemical foaming agent is extruded at a pressure equal to about 135 psi, the foaming of the insulation shield has an 10-40% density reduction of the insulation shield and the heating step is done at about 600-750°F, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 and since the applicant has not disclosed that such a modification solves any stated problems or is for any particular purpose and it appears that Belli would perform equally well with or without the modification.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are Marin et al (Pat Num 36,307), Rowland et al (Pat Num

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4,356,139), Bahder (Pat Num 4,145,567), Betso et al (Pat Num 6,524,702), Gustafsson et al (Pat Num 6,797,886), Foulger (Pat Num 6,514,608), Yamazaki et al (Pat Num 6,284,374), Gadessaud et al (Pat Num 2001/0030053), Easter (Pat Num 6,864,429), Reid et al (Pat Num 6,086,792), Spenadel et al (Pat Num 5,246,783), Iinuma et al (JP Pat Num 08-287741), and Roenisch et al (Pat Num 4,458,105), all of which disclose cable semiconducting layers.

Communication

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (571)-272-1978. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William H. Mayo III
Primary Examiner
Art Unit 2831

WHM III
July 7, 2006